

WE CLAIM:

1. A carriage for use in a printing device, the carriage comprising:

a body having bearing structure configured to support the carriage for movement along a reference track; and

5 a printhead anchored to the body, and aligned directly relative to the carriage bearing structure.

2. A printing device comprising:

a frame;

10 a carriage rail anchored, and datumed relative, to the frame;

a printhead carrier including an integral, plural-axis-datuming datum-reference structure;

15 a carriage body mounted on, and datumed relative to, the carriage rail, and having an integral, plural-axis-datuming datum-reception site adapted to receive the printhead carrier;

20 an anchoring structure configured to anchor the printhead carrier in a generally permanently stabilized condition to the carriage body with the datum-reference structure seated in stabilized contact with the datum-reception site, such anchored and stabilized seating fixedly datuming the printhead carrier relative to the carriage body; and

at least one printhead mounted on the printhead carrier, and aligned relative to the carriage bearing structure.

3. The printing device of claim 2, wherein datuming the printhead carrier relative to the carriage body effects both translational and rotational datuming respecting plural orthogonal reference axes.

4. The printing device of claim 2, wherein the datum-reception site defines a socket including at least three mutually orthogonally-related datum surfaces.

5. The printing device of claim 4, wherein the datum-reference structure defines three mutually orthogonally-related datum surfaces, each configured to confrontingly contact a different one of the datum surfaces of the datum-reception site with the printhead carrier anchored to the carriage body.

6. The printing device of claim 5, wherein each of the three datum surfaces is defined by an orthogonal reference axis.

7. The printing device of claim 2, wherein the printhead includes ink-dispensing nozzles, and which further comprises an ink-supply system configured for fluid connection to the nozzles and for mounting on the carriage body in a manner which, together with the printhead carrier, clamps on opposite sides of a mounting-reception structural portion formed integrally with the carriage body, the mounting-reception structural portion at least partially defining the datum-reception site, and collectively with the printhead carrier and the ink-supply system, forming a clamped, dimensionally-stable, sandwich structure.

8. A printing device comprising:

a moveable carriage body having bearing structure;

a printhead carrier anchored, and stabilized relative, to the carriage body through a single-region, plural-axis datuming zone configured to define a mechanical connective datuming interface between the carriage body and printhead carrier; and

a printhead anchored to the printhead carrier, and aligned relative to the carriage bearing structure.

9. The printing device of claim 8, wherein the printhead includes ink-dispensing nozzles, and which further comprises an ink-supply system fluidly connected to the nozzles, and anchored in a stabilized condition to the carriage body in a manner whereby the carriage body, printhead carrier, printhead and ink-supply system form a unified, stable, locked-together sandwich structure.

10. The printing device of claim 9, wherein the datuming zone defines a socket formed integrally in the carriage body with three mutually orthogonally-related datum surfaces, and the printhead carrier includes datum-reference structure with three mutually orthogonally-related datum surfaces, each
5 configured for receipt within the socket to confrontingly contact a different one of the datum surfaces of the socket.

11. The printing device of claim 10, wherein the datuming zone is constructed to furnish, via confronting contact between different pairs of datum
10 surfaces, datuming capabilities that are both translational and rotational with respect to three mutually orthogonal axes.

12. The printing device of claim 8, wherein the datuming zone includes orthogonally related surface structure configured to furnish datuming capabilities
15 that are both translational and rotational with respect to three mutually orthogonal axes.

13. The printing device of claim 8, wherein the datuming zone includes a socket formed integrally in the carriage body with three mutually orthogonally
20 related datum surfaces, and wherein the printhead carrier includes datum-reference structure with three mutually orthogonally related datum surfaces, each configured for receipt within the socket to confrontingly contact a different one of the orthogonally related datum surfaces in the socket.

14. The printing device of claim 13, wherein the datuming zone is constructed to furnish, via confronting contact between different pairs of datum
25 surfaces, datuming capabilities that are both translational and rotational with respect to three mutually orthogonal axes.

15. A printing device comprising:

moveable carriage body means having bearing structure;

printhead carrier means anchored, and stabilized relative, to the carriage body means; and

5 datuming means operatively interposed the carriage body means and the printhead carrier means in a region of anchoring therebetween for defining and providing a single-region, plural-axis datuming zone which functions as a full datuming interface between the carriage body means and the printhead carrier means; and

10 printhead means anchored to the printhead carrier means is positionally defined relationship relative to the bearing structure of the carriage body means.

16. The printing device of claim 15, wherein the datuming means defines surface means for furnishing both translational and rotational datuming with respect to three mutually orthogonally related axes.

17. The printing device of claim 15, wherein the datuming means includes socket means formed in the carriage body means and docking means formed in the nozzle plate means for anchored receipt within the socket means.

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18. The printing device of claim 16, wherein the socket means is formed on an underside of the carriage body means.

19. In a printing device including a frame with respect to which there are associated three mutually orthogonally-related reference axes, datuming apparatus comprising:

a carriage body having bearing structure and defining a rectilinear datuming socket formed integrally on an underside thereof, the socket defining at least three mutually orthogonally related planar surfaces, each of which corresponds with two of the reference axes;

a printhead carrier including integrally-formed, rectilinear, datuming docking structure received within the socket and including at least three mutually orthogonally related planar surfaces which bear confrontingly, on a one-to-one basis, with one each of the at least three mutually orthogonally related planar surfaces of the socket, such datumed reception creating a stable, all-degree-of-relative-motion, locked, datumed relationship between the carriage body and the printhead carrier;

an ink-supply system fluidly connected to the printhead carrier, and mounted on the carriage body in a manner which, together with the printhead carrier, forms a sandwich structure with a portion of the carriage body interposed the printhead carrier and the ink-supply system;

anchoring structure extending through the portion of the carriage body interposed the printhead carrier and the ink-supply system to anchor the printhead carrier and the ink-supply system to the sandwich structure in a condition with the printhead carrier and the ink-supply system drawn in fixed relationship against opposite sides of the portion of the carriage body interposed the printhead carrier and the ink-supply system; and

a printhead having a plurality of nozzles, the printhead being anchored to the printhead carrier with the nozzles in fluid communication with the ink-supply system via the printhead carrier, such printhead being aligned directly relative the carriage body bearing structure.

20. A method of aligning a printhead relative to a printzone in a printing device wherein the printing device includes a carriage mounted in the printing device via bearing structure for movement along a reference track, the method comprising:

5 selecting surfaces of a carriage body to be carriage body datuming surfaces;

selecting surfaces of a printhead carrier to be printhead carrier datuming surfaces;

10 orienting the carriage body datuming surfaces relative to the printhead carrier datuming surfaces whereby confronting contact between adjacent pairs of such datuming surfaces will be effective to produce plural-axis datuming of the printhead carrier relative to the carriage body;

anchoring the printhead carrier to the carriage body, with the datuming surfaces contacting one another; and

15 mounting a printhead on the printhead carrier with the printhead aligned relative to the carriage bearing structure upon such mounting.

21. A method of assembling a carriage for use in a printing device wherein carriage includes a carriage body mounted for movement along a reference track via bearing structure, the method comprising:

20 datuming a printhead carrier relative to the carriage body;

datuming an ink-supply system relative to the carriage body in fluid communication with the printhead carrier;

anchoring the printhead carrier to ink-supply system with the carriage body

25 intermediate the printhead carrier and the ink-supply system;

mounting a printhead on the printhead carrier;

aligning the printhead relative to the carriage bearing structure upon mounting the printhead on the printhead carrier.